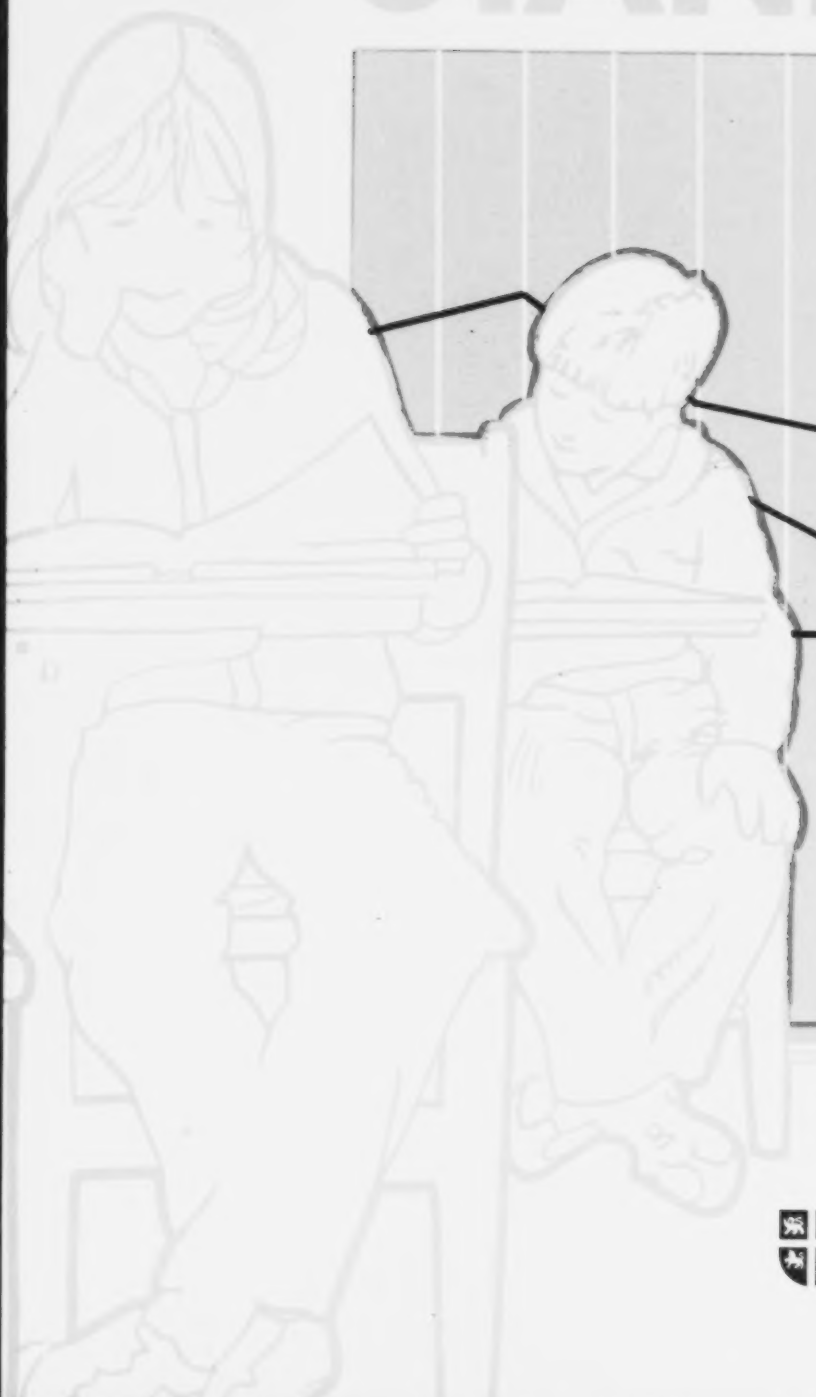
TESTING STANDARDS



Grade 7
1994

GOVERNMENT OF
NEWFOUNDLAND
AND LABRADOR
Department of Education and Training
Division of Evaluation, Research, and Planning
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TESTING STANDARDS PROGRAM

GRADE 7

1994

Division of Evaluation,
Research and Planning
Department of Education and Training

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PREFACE

In October of 1994, with the cooperation of schools and school districts, the Canadian Tests of Basic Skills (CTBS) were administered to Grade 7 students in 27 school districts and 3 private schools. This marks the first time that the population of Grade 7 students has been tested in the province of Newfoundland. The number of students participating in the CTBS was 8573, with 7063 students completing the total battery.

A substantial part of this report focuses on the skill objectives tested by the CTBS. The results should provide informative feedback and serve to motivate both teachers and pupils to increased, better directed efforts in both teaching and learning.

The Department of Education and Training is grateful to all district and school personnel who have helped in the administration of the tests, and to Department personnel who helped in the analysis of the results.

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INTRODUCTION

The Canadian Tests of Basic Skills (CTBS) are norm-referenced tests which have, traditionally, been administered to students in this province in Grades 4, 6, and 8 on a rotating basis. This was the first year that students at the Grade 7 level were tested. It is intended that the tests will be administered at the Grade 10 level in the upcoming school year.

The CTBS provide information about student performance in five basic skill areas: **vocabulary, reading, language, work-study,** and **mathematics**. These skill areas are considered to be crucial in educational development because they determine, for the most part, the extent to which students can profit from later instruction. The skill areas of **language, work-study,** and **mathematics** comprise a number of subtests. The **language** test is divided into four subtests: spelling, capitalization, punctuation, and word usage and expression. The **work-study** test consists of two subtests: visual materials and reference materials. The **mathematics** test comprises three subtests: concepts, problem-solving, and computation.

The CTBS were designed to provide a model that shows what is expected of students, to provide feedback of progress, and to determine the student's developmental level so that instruction can be adapted to meet his/her individual needs and abilities. In addition, the CTBS are used to indicate the extent to which pupils have met the skill requirements needed to proceed to the next grade, to diagnose strengths or weaknesses in curriculum and instructional procedures, and to report performance in basic skills to parents and to the public in objective, meaningful terms. The CTBS provide a first step in the accountability and improvement of student performance by enabling test administrators to obtain comparable data on student performance.

The information provided by the CTBS is not comprehensive enough to use in making evaluation decisions about individual students. These decisions should be made from data gathered through sources other than standardized tests.

This report is designed to give a provincial perspective on student achievement as it relates to those basic skills tested by the CTBS. The results of the five major skill areas and subtests of the CTBS are analyzed by looking at provincial and district data. Specific comparisons such as urban versus rural student performance and male versus female performance are also provided.

Two types of scores are used for comparing performance: percentile ranks (PR) and grade equivalents (GE). A percentile rank tells how a pupil's test performance compares with that of others in a given reference group (e.g. the class, district, province, etc.) and indicates the percentage of examinees scoring lower on the test. For example, a percentile rank of 40 means that 40% of students in the norm group had a lower score. **The Canadian norm or average score for all tests or subtests is the 50th percentile,** but any rank between 40 and 60 is considered to be in the average range. Grade equivalent scores are also presented throughout the report. Grade equivalents indicate the grade level at which the typical student makes the raw score. Grade equivalents in elementary/junior high range from K.2 to 9.9. The first digit represents the grade and the second digit represents the month within the grade in which the typical student makes the corresponding raw score. For example, if a student is assigned a grade equivalent of 7.2, it means that the number of items he/she had correct is equal to that which an average student in the second month (October) of Grade 7 would have correct. Equal differences in scores do not mean equal differences in achievement.

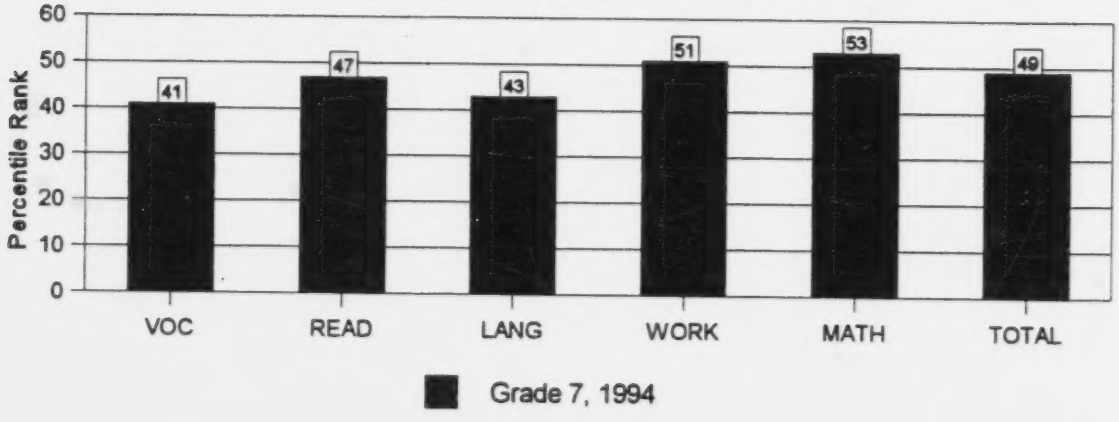
PROVINCIAL RESULTS

Performance in the five major skill areas and in the total battery

The provincial average for the CTBS is composed of the scores of regular English students, French Immersion students, and students whose first language is French. Excluded from the provincial average are the scores of English Second Language students (e.g. Inuktitut), and students whose curriculum is determined by an individualized program plan (IPP).

From Figure 1 it can be seen that results are in the lower average range on **vocabulary, reading,** and **language**. Performance in **work-study** and **mathematics** is slightly above the national average. The composite score is in the average range, falling only one percentile below the average performance of the norm group. In order for a student's score to be included in the composite score, he/she must have completed all eleven skill areas.

Fig. 1: Provincial Performance on the Five Major Skill Areas and Total Battery, Grade 7, 1994



Performance on the CTBS subtests

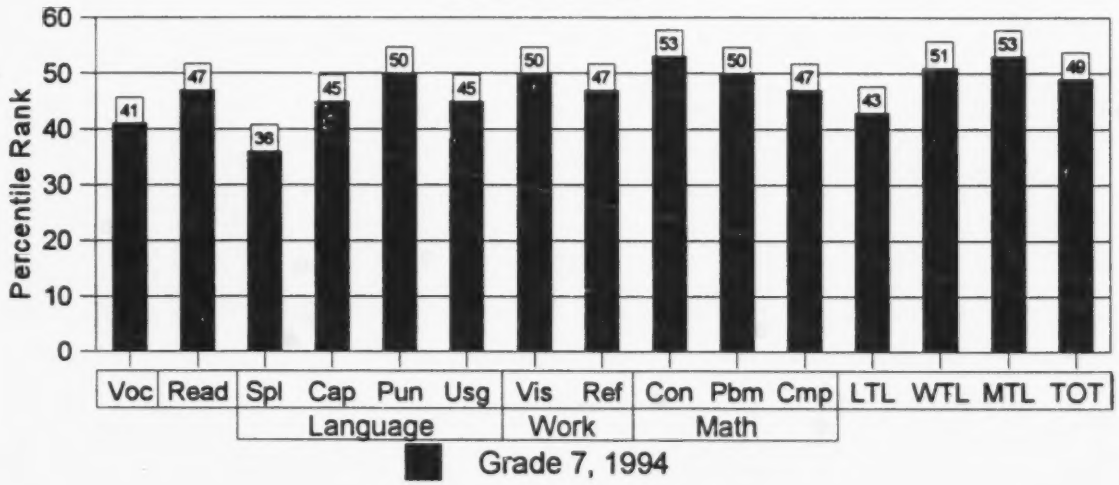
Provincial percentile rankings were calculated for the four **language** subtests, the two **work-study** subtests, and the three **mathematics** subtests. The results are shown in Figure 2.

Language. Newfoundland students performed in the average range on three of the four subtests: capitalization (45th percentile), punctuation (50th percentile) and word usage (45th percentile). Students scored the lowest on the spelling subtest, falling 14 percentile ranks below the average for the norm group.

Work-study. Students scored in the average range on both the visual materials (50th percentile) and the reference materials (47th percentile) subtests.

Mathematics. Students scored in the average range on all three of the **mathematics** subtests. Performance was the highest on the concepts subtest (53rd percentile) while performance in problem solving and computation was at the 50th and 47th percentile respectively.

Fig. 2: Subtest Performance on the CTBS
Grade 7, 1994

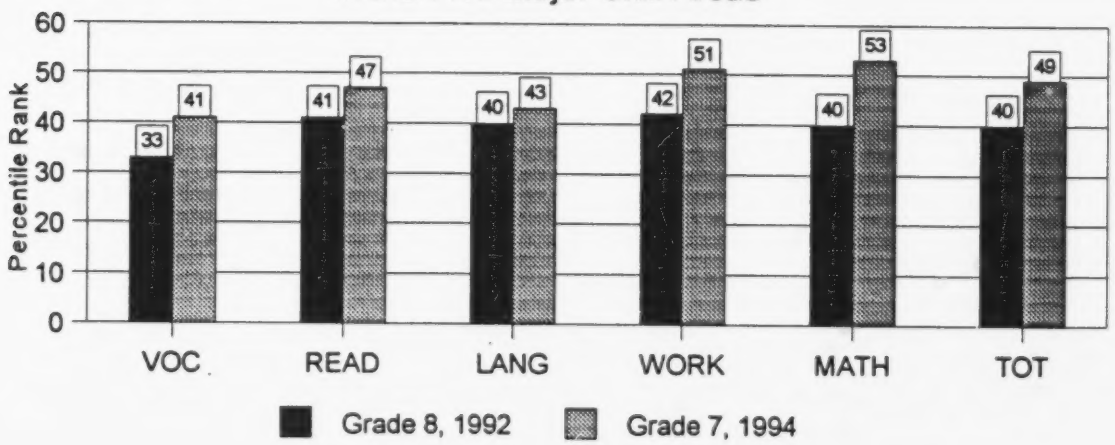


COMPARISONS WITH PREVIOUS YEARS

Since this is the first year that the Grade 7 level has been tested, there are no previous testing results with which comparisons can be made. However, Figure 3 compares the 1994 Grade 7 performance with the 1992 Grade 8 performance. The Grade 7 students attained higher percentile scores than the Grade 8 students on all of the subtests and on the total test.

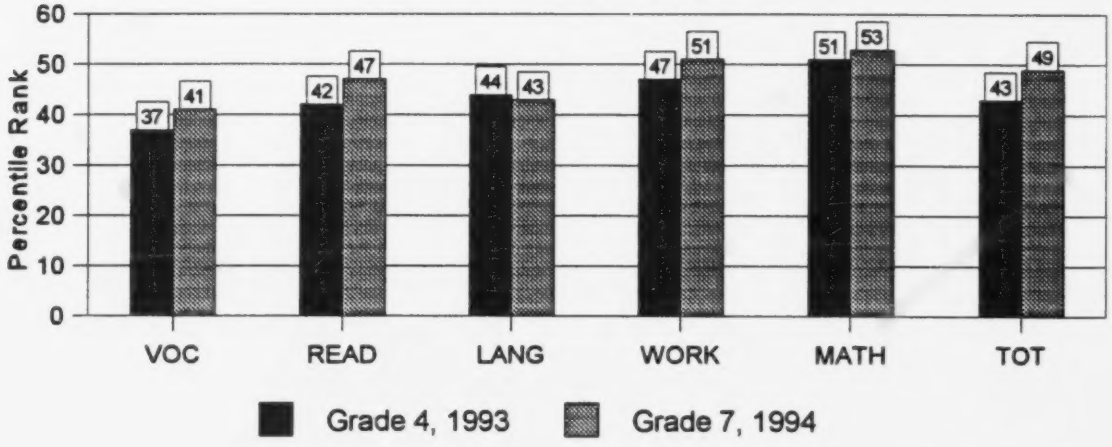
The most noticeable difference in achievement occured in the **mathematics** skill area, where the Grade 8 students scored at the 40th percentile and the Grade 7 students scored at the 53rd percentile. There were also sizeable differences in the scores on the **vocabulary** and **work-study** subtests.

Fig. 3: Comparison of Grade 7, 1994 and Grade 8, 1992 Scores in the Five Major Skill Areas



The 1994 Grade 7 performance can also be compared with the 1993 Grade 4 performance, as shown in Figure 4. Overall, the Grade 7 students attained somewhat higher percentile scores in all areas except for language. The difference between the Grade 4 and the Grade 7 scores is relatively small. The most noticeable differences in achievement occurred in the **reading** scores.

Fig. 4: Comparison of Grade 7, 1994 and Grade 4, 1993 Scores in the Five Major Skill Areas



DIFFERENCES IN ACHIEVEMENT

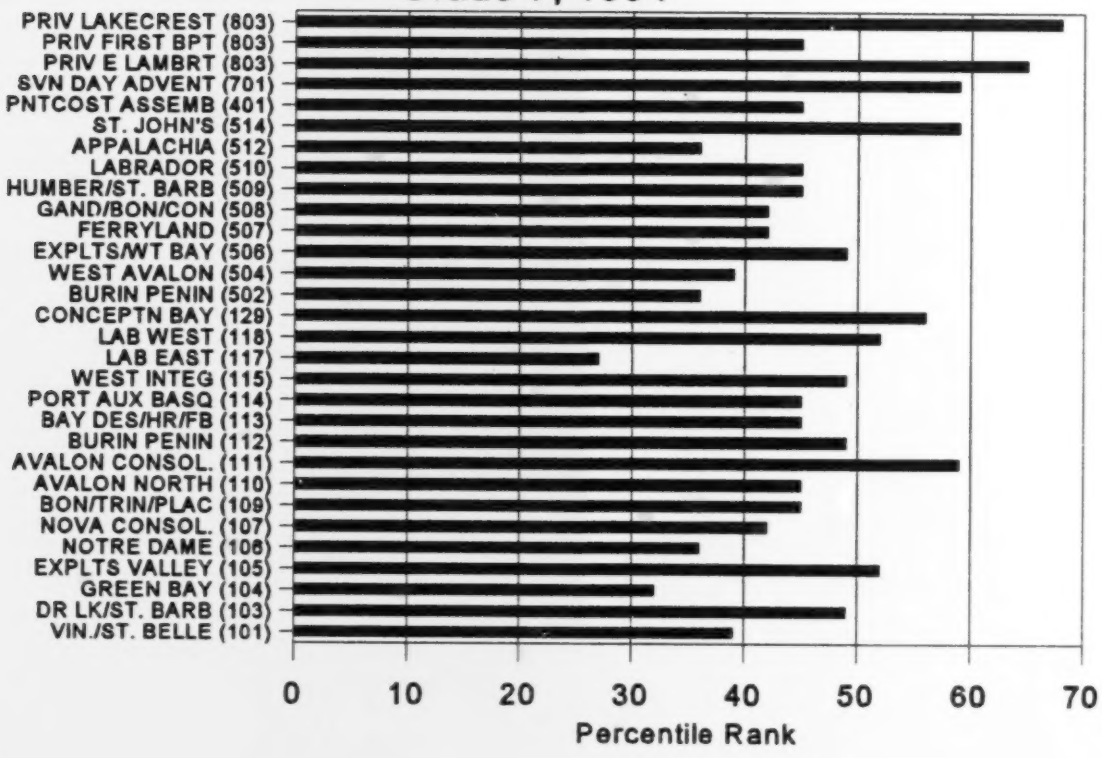
There are noticeable differences in achievement that are a function of school district, sex, program type (e.g. French Immersion), type of community, region, and school size.

School district

The composite scores of the 27 school districts and the three private schools that participated in the CTBS are compared in Figure 5. Performance ranged from the 27th to the 68th percentile. One school district had a percentile ranking below 30; 6 districts were in the 31st to 40th percentile range; 14 districts and one private school were in the 41st to 50th percentile range; 6

Fig. 5: District Composite Scores

Grade 7, 1994

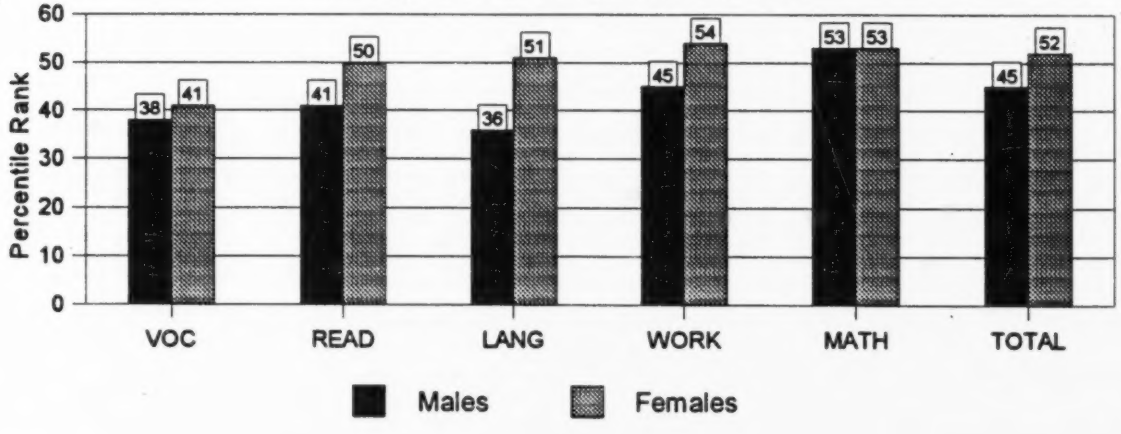


districts were above the 50th percentile (the national average), and two private schools had performances in the 65th to 70th percentile range. It must be noted that even though school-level data are not provided in the report, there is considerable variation among schools within the province, and even among schools within the same district. For information about subtest performance within each district, see Appendix A.

Comparison by sex

Performance in the five major skill areas. A comparison of male and female performances, as presented in Figure 6, reveals that females outperformed males in all areas except **mathematics**, in which both groups scored at the 53rd percentile. Females scored the highest in **work-study** (54th percentile), while scoring at or above the national average in all other areas except **vocabulary** (41st percentile), in which they scored at the lower end of the average range. Male students scored below the average percentile range in **vocabulary** (38th percentile) and **language** (36th percentile). Male achievement in all other areas was within the average range.

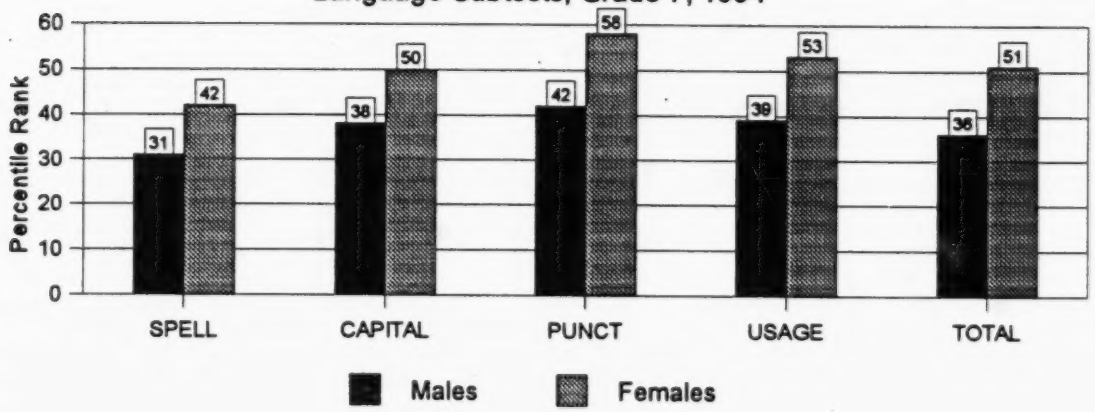
Fig. 6: Comparison of Male and Female Scores in the Five Major Skill Areas, Grade 7, 1994



Subtest performance (language). Female students performed within the national percentile range in all **language** subtests (refer to Figure 7). They achieved a percentile ranking of 42 in the spelling subtest and a percentile ranking of 50 or greater in all other subtests. The **language** total for females was at the 51st percentile. Males scored below the national percentile range in all subtests except the punctuation subtest in which they scored at the lower end of the national average range (42nd percentile). The male **language** total was at the 36th percentile.

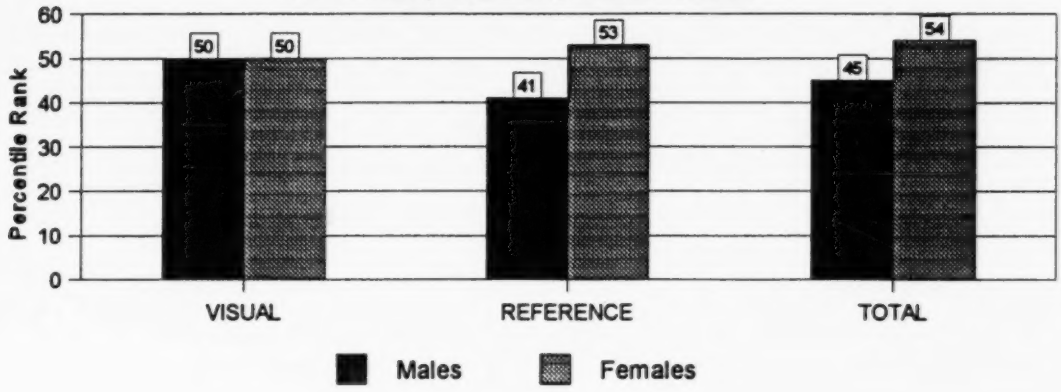
The most notable differences between male and female students were in the punctuation and usage subtests, in which females outperformed males by 16 percentile ranks and 14 percentile ranks respectively. There was also a difference of 15 percentile ranks between the male and female total **language** score.

Fig. 7: Comparison of Male and Female Scores in the Language Subtests, Grade 7, 1994



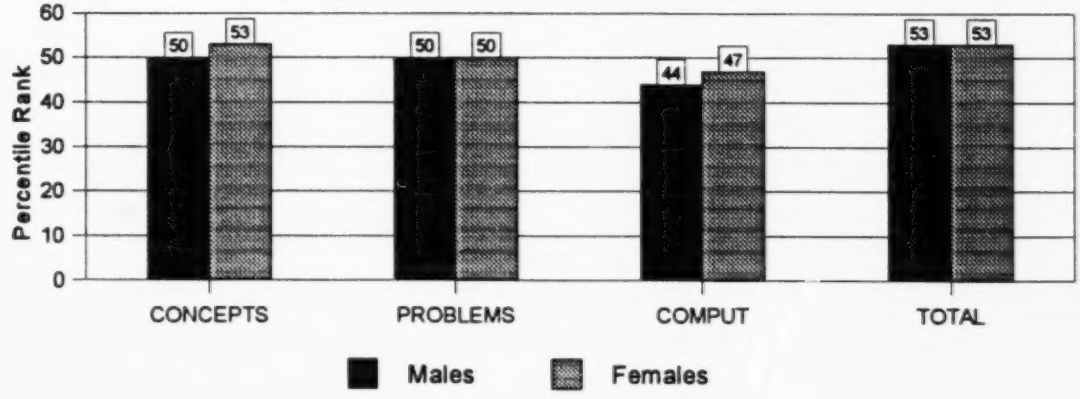
Subtest performance (work-study). Subtest scores for the **work-study** skill area were within the national average range for both males and females (refer to Figure 8). However, females outperformed males by 12 percentile rankings in the reference materials subtest. Females' total **work-study** score was 9 percentile rankings higher than the male total. Both males and females achieved a percentile ranking of 50 in the visual materials subtest.

Fig. 8: Comparison of Male and Female Scores in the Work-Study Subtests, Grade 7, 1994



Subtest performance (mathematics). Both male and female students scored within the national average range in all **mathematics** subtests (refer to Figure 9). Females outperformed males by 3 percentile rankings in the computation subtest. Males outperformed females in the concepts subtest in which males achieved a percentile ranking of 53 and females scored at the 50th percentile. A percentile ranking of 50 was achieved by both males and females in the problems subtest. The total **mathematics** score for both males and females was a percentile ranking of 53.

Fig. 9: Comparison of Male and Female Scores in the Mathematics Subtests, Grade 7, 1994

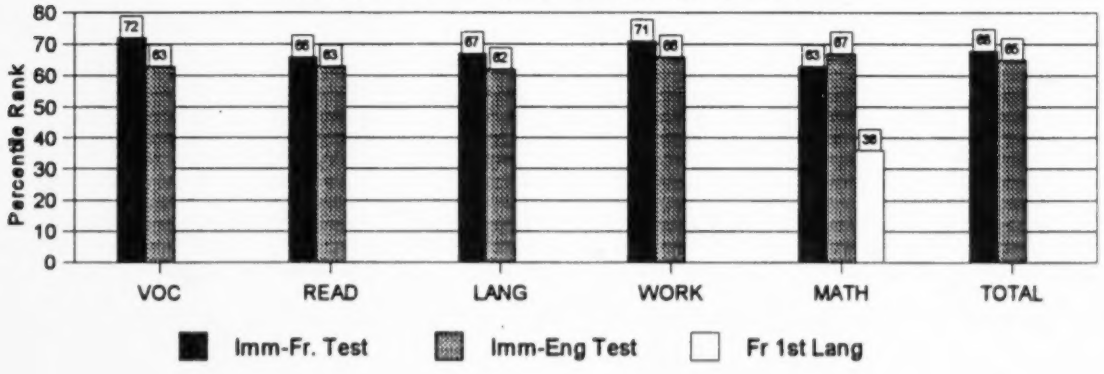


Achievement of French Immersion and French First Language students

The CTBS were administered to Grade 7 French Immersion students. Teachers were provided with a French and English version of the **mathematics** test (including all three subtests). Students in the French Immersion program were randomly assigned to either the French or the English version of the test. However, all French Immersion students used an English version of the test for the other skill areas. The French First Language students were asked to write only the mathematics component of the CTBS because it is the only skill area where a French version is available.

The performance of French Immersion students in all five skill areas and the mathematics scores for French First Language students are shown in Figure 10. From the figure it can be seen that the French mathematics subgroup achieved a higher overall performance (68th percentile) than the English mathematics subgroup (65th percentile). The most notable difference between the two Immersion groups was on the **vocabulary** test. On that test, the English subgroup scored at the 63rd percentile and the French subgroup scored at the 72nd percentile. It should be noted that Immersion students scored well above the national average in all skill areas, reaching as high as the 72nd percentile.

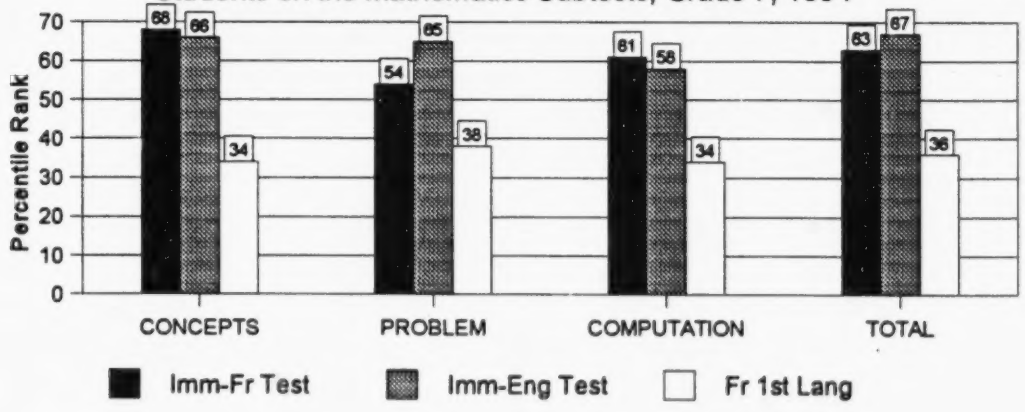
Fig. 10: Performance of French Immersion and French First Language Students in the Five Basic Skill Areas, Grade 7, 1994



In **mathematics**, the English subgroup performed the highest (67th percentile), followed by the French subgroup (63rd percentile) and the French First Language students (36th percentile) respectively.

Figure 11 provides a closer look at the **mathematics** test for the three groups by providing the score for each of the three subtests. In the concepts subtest, French mathematics students achieved a percentile rank of 68, followed by the English mathematics students (66th percentile) and the French First Language students (34th percentile) respectively. In the problem-solving subtest, English mathematics students scored the highest with a percentile rank of 65. French mathematics and French First Language students scored at the 54th and the 38th percentile respectively. Finally, French mathematics students achieved the highest score on the computation subtest, reaching the 61st percentile. On that subtest, the English mathematics students scored at the 58th percentile and the French First Language students achieved a percentile rank of 34.

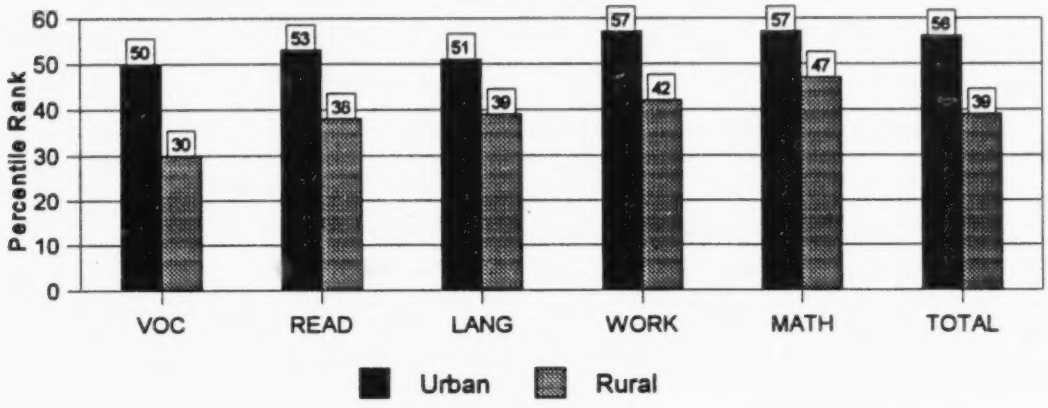
Fig. 11: Performance of French Immersion and French First Language Students on the Mathematics Subtests, Grade 7, 1994



Urban/Rural performance

Urban students outperformed rural students in all skill areas. The greatest difference was in the **vocabulary** test where urban students outperformed their rural peers by 20 percentile ranks. The smallest difference between urban and rural students occurred in **mathematics** where urban students performed at the 57th percentile, whereas rural students achieved a percentile rank of 47. Figure 12 presents the urban/rural performance data.

Fig. 12: Urban and Rural Performance in the Five Basic Skill Areas
Grade 7, 1994

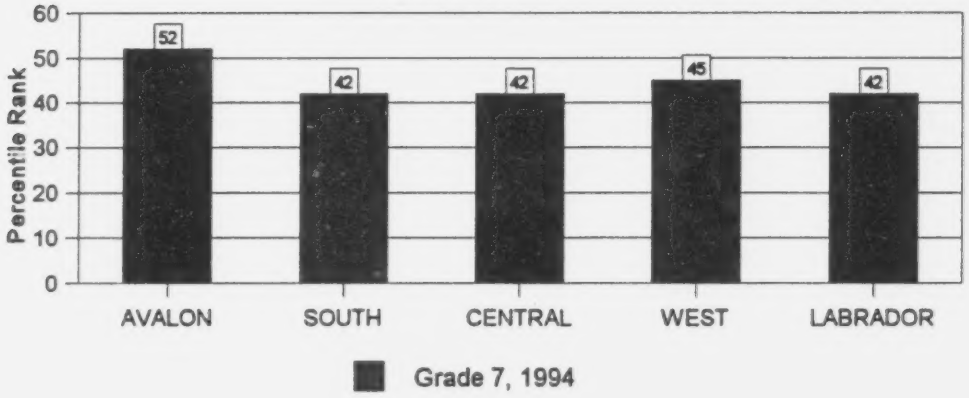


Performance by region

The provincial data are also analyzed by region as can be seen in Figure 13. This figure presents the regional scores on the CTBS total battery. The Avalon region scored markedly higher than the other four regions.

Fig. 13: Composite Scores by Region

Grade 7, 1994



Performance by region and type of community

Table 1 provides a further breakdown of the data by subdividing the regional performances into rural and urban categories. The table reveals that urban students achieved higher scores than rural students in four of the five regions. Performance among rural and urban students did not differ in the Southern region. Overall, urban students were 6 percentile ranks above the national norm. All regions in the rural category scored below the 7.2 GE (which represents the national norm for students writing the test in the second month of Grade 7). Urban students however, scored an overall GE of 7.3 with three of the five regions scoring at or above a 7.2 GE.

Table 1. Achievement by Region and Type of Community

REGIONS	RURAL			URBAN			TOTAL REGION		
	N	GE	NP	N	GE	NP	N	GE	NP
AVALON	856	6.9	42	2113	7.4	59	2969	7.2	52
SOUTH	595	6.9	42	160	6.9	42	755	6.9	42
CENTRAL	1236	6.8	39	464	7.4	59	1700	6.9	42
WEST	661	6.8	39	528	7.2	52	1189	7.0	45
LABRADOR	153	6.7	36	297	7.0	45	450	6.9	42
COMPOSITE	3501	6.8	39	3562	7.3	56	7063	7.1	49
N = Number of students; GE = Grade equivalent; NP = National percentile									

Performance by school size

The relationship between school size and CTBS performance is demonstrated in Figure 14. As school size increases, performance also tends to increase. Small schools, enrolling 1-19 Grade 7 students, scored approximately 20 percentile ranks below schools enrolling 130+ students in Grade 7.

Performance by school size and type of community

Composite scores were also analyzed by school size and type of community. The data are summarized in Table 2. From the table, it can be seen that the lowest scores were achieved by rural students enrolled in small schools. However, the difference between urban and rural students tends to decrease as school size increases. That is, there is a greater rural-urban difference when the school has 1-19 Grade 7 students than when school has 75-129 students in Grade 7.

Fig 14: Composite Scores by School Size
Grade 7, 1994

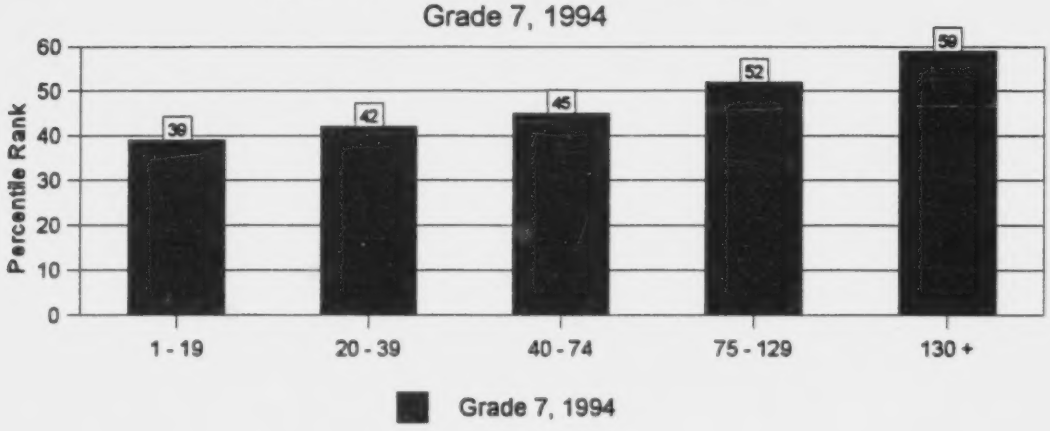


Table 2. Achievement by School Size and Type of Community

SCHOOL SIZE	RURAL			URBAN			TOTAL REGION		
	N	GE	NP	N	GE	NP	N	GE	NP
1 - 19	760	6.8	39	95	7.4	59	855	6.8	39
20 - 39	1578	6.8	39	272	7.3	56	1850	6.9	42
40 - 74	827	6.8	39	842	7.2	52	1669	7.0	45
75 - 129	336	7.0	45	1017	7.3	56	1353	7.2	52
130 +	---	---	---	1336	7.4	59	1336	7.4	59
COMPOSITE	3501	6.8	39	3562	7.3	56	7063	7.1	49
N = Number of students; GE = Grade equivalent; NP = National percentile									

USE OF RESULTS

The Canadian Tests of Basic Skills are norm-referenced tests whose items have been derived from Canadian curriculum objectives and chosen to produce maximum test variance and maximum discrimination among examinees. All items have been selected for their high discriminating power (i.e. the tests can spread examinees along a continuum of achievement) and are, on average, of medium difficulty (i.e. most of the items on the tests have been answered correctly by 30 to 70 percent of the students in the norming sample). Regardless of how well an item matches and measures an objective, it would be selected out if a very high or very low proportion of the students in the norm group answered it correctly, since such items do not discriminate well. Likewise, if an item were answered correctly by half of the students in the group and the discrimination index was low, it would be selected out.

The strongest inferences that may be drawn from the results are those that are based on comparisons between individuals and between groups. Nevertheless, it is possible to draw inferences about the curriculum because test items are drawn from curriculum objectives that match the objectives of some of our programs fairly well. Caution must be exercised when groups are being compared because all summary statistics are reported in averages that are sensitive to extreme scores. Before comparisons are made, extreme scores should be noted and their effects taken into account. Depending on the degree of skewness in the data, the median may be a more informative summary statistic to use than the mean.

The formative use of the results depends on the amount of time devoted to an analysis of the CTBS results. It is possible to use the data to make decisions pertaining to the need for extra instructional emphasis or the need for individualized instruction. A more comprehensive description of how information may be used for formative evaluation purposes is contained in the ***Canadian Tests of Basic Skills Teachers' Guide***.

STANDARD ERROR OF MEASUREMENT AND RELIABILITY

Individual student scores on the Canadian Tests of Basic Skills should not be regarded as absolutes since, as with all test scores, there is error in grade equivalent scores. Because of this error, examinees who take a test over and over are unlikely to obtain the same score each time. The statistical properties of a test, such as its reliability and standard error of measurement, make it possible to determine how dependable it is and how much confidence we can place in the scores it yields.

The **reliability** of a test is the extent to which it is free from random measurement error. Tests that are highly reliable are consistent and trustworthy. The better tests have a reliability of close to 1.00, while very poor tests have a reliability of close to 0.00. Reliability can be assessed through the calculation of an alpha coefficient, which gives the average of the correlations between all possible pairs of items on the test. The alpha coefficients of each of the subtests and of the total test are contained in Table 3. As can be seen from this table, all of the subtests are extremely reliable, so we can be confident that the obtained scores are quite accurate.

The amount of error in the individual scores is referred to as the **standard error of measurement (SEM)**. The SEM for the subtests are shown in Table 3. Knowledge of standard errors allows us to put **confidence bands** around the scores of individual students. If one standard error is added to a grade equivalent and one standard error is subtracted from it, an interval is created within which we can be 68% sure the true score falls. If two standard errors are added to the score and two standard errors are subtracted from it, a wider interval is created, within which we can be 95% certain that the true score falls. For example, if a student has a grade equivalent of 7.2 in **vocabulary** and the SEM is six months, we can be 68% certain that the student's true grade equivalent score is between 6.6 (7.2 subtract 6 months) and 7.8 (7.2 plus 6 months). Likewise, we can be 95% certain that the true score is between 6.0 [7.2 subtract (2 x 6 months)] and 8.4 [7.2 plus (2 x 6 months)].

Group scores for classes, schools, districts, and the province provide a closer approximation of true achievement on an item or subtest because error for individuals is randomly distributed across the error interval. Therefore, the error bars for the mean score of a group of students will be smaller than that for an individual student, and we can be more confident that this group score is an accurate reflection of the group's true ability.

Table 3. Standard Error of Measurement and Reliability

SEM AND RELIABILITY		
SUBTEST	SEM Grade Equivalent (Months)	RELIABILITY COEFFICIENT
VOCABULARY	5.3	.84
READING	4.1	.90
LANGUAGE	3.2	.94
Spelling	5.8	.88
Capitalization	7.5	.76
Punctuation	6.2	.83
Usage and Expression	6.0	.86
WORK-STUDY	2.6	.96
Visual Materials	5.1	.86
Reference Materials	5.3	.86
MATHEMATICS	2.6	.94
Concepts	5.2	.85
Problem Solving	5.6	.83
Computation	5.0	.81
COMPOSITE	1.9	.97

ITEM ANALYSIS

This section presents the descriptions and results of the various skill objectives tested by the CTBS. It is hoped that they will be used to engender discussions at the school and district levels. For comparative purposes, both the national and the provincial results have been reported. Spaces have been provided for boards and schools to enter the results of their item analysis reports. Once this has been done, more complete comparisons can be made.

Test V: Vocabulary

The Vocabulary test measures both the extent or breadth of the student's vocabulary as well as the student's ability to make fine distinctions in word meaning.

Item 73: A guilty **verdict**

* 1. judgment
2. belief
3. confession
4. appearance

Provincial – 58%
National Norming Sample –55%

Item 83: **Counterfeit** tickets

1. unused
* 2. imitation
3. faulty
4. extra

Provincial – 37%
National Norming Sample – 53%

The Newfoundland students had a grade equivalent score of 6.9 on the **vocabulary** subtest. This score indicates that the students were on average three months behind the national norm. Newfoundland students had 47% of the items correct, compared to 50% correct by the norm group.

Table 4. Item Analysis (Vocabulary)

Test V: Vocabulary		**Average Percent Pass**			
Skill Objectives	No. Items	Provincial	National	Board	School
NOUNS (N): Determining meaning of nouns in context	15	50	53		
VERBS (V): Determining meaning of verbs in context	13	44	46		
MODIFIERS AND CONNECTIVES (M): Determining the meaning of adjectives, adverbs, prepositions, and conjunctions in context	13	46	50		
TOTAL VOCABULARY	41	47	50		

There are three linguistic categories: nouns, verbs, and modifiers/connectives. The modifiers/connectives category includes adjectives, adverbs, prepositions, and conjunctions. All three categories of words are presented in a weak context that is meant to limit the word to one meaning without actually giving clues about the meaning of the word. The items are intended to assess the student's ability to determine the meaning of a word in context.

For nouns, Newfoundland students correctly answered 50% of the items, compared with 53% for the norm group. The norm group had a higher performance than Newfoundland students on 11 of the 15 items, particularly Item 77 ("windfall").

For verbs, Newfoundland students correctly answered 44% of the items as compared with 46% for the norm group. Newfoundland students had particular trouble with Items 65 ("cop out") and 69 ("dilute"), and did particularly well on Items 78 ("repel") and 94 ("tantalize"). The norm group had a higher performance than Newfoundland students on 8 of the 13 items.

For modifiers and connectives, Newfoundland students correctly answered 46% of the items, as compared with 50% for the norm group. Relative to the norm group, Newfoundland students had troubles with Items 59 ("edible"), 83 ("counterfeit"), and 87 ("synthetic"). Out of 13 items, the norm group had a higher performance on 8 items.

Table 5. Item Analysis (Reading Comprehension)

Test R: Reading Comprehension	**Average Percent Correct**				
Skill Objectives	No. Items	Provincial	National	Board	School
FACTS (F): To recognize/understand stated factual details and relationships (literal meaning)	16	51	51		
F1 Description	8	51	51		
F2 Categorization	2	47	50		
F3 Relationships	3	47	48		
F4 Contextual Meaning	3	58	54		
INFERENCES (I): To infer underlying relationships (interpretive meaning)	18	51	54		
I1 Cause and Effect	6	52	53		
I2 Draw Conclusions	8	54	56		
I3 Traits and Feelings	1	31	36		
I4 Motives	3	49	56		
GENERALIZATIONS (G) To develop generalizations from a selection (evaluative meaning)	23	49	50		
G1 Main Idea	4	53	54		
G2 Organization	3	53	51		
G3 Application	4	42	43		
G4 Purpose	5	55	56		
G5 Viewpoint	1	47	53		
G6 Figurative Language	2	42	45		
G7 Mood	2	41	51		
G8 Style	2	38	39		
TOTAL READING COMPREHENSION	57	48	50		

Test R: Reading Comprehension

This test assesses whether or not the student has understood what he/she has read, both at the surface level and in more depth.

Out of the night and the north,
    Savage of breed and of bone,
Shaggy and swift comes the yelping band,
Freighters of fur from the voiceless land
    That sleeps in the Arctic zone.

Laden with skins from the north,
    Beaver and bear and raccoon,
Marten and mink from the polar belts,
Otter and ermine and sable pelts-
    The spoils of the hunter's moon.

Item 82: Where did the skins come from?
1. Freighters delivered them.
2. Traders discarded them.
* 3. Hunters had killed the animals.
4. Other animals had killed the fur-bearing animals.

Provincial – 68%
National Norming Sample – 71%

'There is no quiet place in the white man's cities. No place to hear the leaves of spring or the rustle of insect wings . . . The white man does not seem to notice the air he breathes. Like a man dying for many days, he is numb to the stench. What is man without the beasts? If all the beasts were gone, men would die from great loneliness of spirit, for whatever happens to the beasts also happens to man. All things are connected. Whatever befalls the earth befalls the sons of earth.'

Item 118: What is the tone of this message?

1. Joy
2. Anger
3. Delight
* 4. Concern

Provincial – 41%
National Norming Sample – 54%

Newfoundland students had a grade equivalent of 7.1 on the **reading comprehension** subtest, which indicates that they were on average one month behind the norm group. Overall, Newfoundland students had 48% of the items correct, compared to 50% for the control group.

There are three categories of **reading comprehension** items: facts, inferences, and generalizations. The fact items assess the student's literal understanding of details and relationships stated in the text. The inference items assess the student's ability to infer underlying relationships. The generalization items assess the student's ability to make generalizations on the basis of the information supplied in the text.

For facts, Newfoundland students equalled the norm group. The Newfoundland students performed as well as or better than the norm group on 10 of the 16 items.

For inferences, Newfoundland students correctly answered 51% of the items, compared with 54% for the national norm. Relative to the norm group, Newfoundland students had particular trouble with Items 104 ("Why do people in show business sometimes use pseudonyms?") and 121 ("Why does the author refer to the three senses of smell, touch, and hearing as the only sources of information about the house?"). The norm group had a higher performance on 11 of the 18 items in this category.

For generalizations, Newfoundland students correctly answered 49% of the items, compared with 50% for the norm group. The Newfoundland students equalled or outperformed the norm group on 10 of the 23 items.

Test L-1: Spelling

Table 6. Item Analysis (Spelling)

Test L - 1: Spelling		**Average Percent Correct**			
Skill Objectives	No. Items	Provincial	National	Board	School
Consonant Substitution (CS)	4	69	72		
Consonant Reversals (CR)	4	39	45		
Omission of Consonants (CO)	4	40	48		
Addition of Consonants (CA)	5	48	48		
Double Consonants (CD)	3	25	29		
Vowel Substitution (VS)	5	49	56		
Vowel Reversals (VR)	4	39	47		
Omission of Vowels (VO)	4	47	53		
Addition of Vowels (VA)	3	39	46		
No Mistakes (NM)	5	49	57		
TOTAL SPELLING	41	44	50		

In this test, students are instructed to look for mistakes in the spelling of words.

Item 69:
* 1. luxsury
2. liability
3. commendation
4. intelligence
5. *(No mistakes)*

Provincial – 34%
National Norming Sample – 28%

Item 70:
1. grief
2. jewel
3. concrete
* 4. magazene
5. *(No mistakes)*

Provincial – 53%
National Norming Sample – 64%

The Newfoundland students had a grade equivalent score of 6.5 on the **spelling** subtest. This indicates that they were on average seven months behind the national norm group. Newfoundland students answered 44% of the items correctly, as compared to 50% for the norm group.

The **spelling** subtest assesses the student's recognition of common spelling errors such as the omission, reversal, and substitution of consonants and vowels; double consonants, and the addition of unnecessary consonants and vowels.

For consonant substitution, Newfoundland students correctly answered 69% of the items, compared with 72% for the norm group. The norm group outperformed the Newfoundland students on 3 out of the 4 items.

For consonant reversal, the Newfoundland students correctly answered 39% of the items, compared with 45% for the norm group. The norm group had a higher performance on 3 out of

the 4 items in this category. In particular, the Newfoundland students had trouble with Item 72 ("vegetabels").

For consonant omission, the Newfoundland students correctly answered 40% of the items, compared with 48% for the norm group. The norm group outperformed the Newfoundland students on all four items in this category. Relative to the national norm group, the Newfoundland students had trouble with Item 60 ("probaly") and Item 76 ("Febuary").

For consonant addition, the Newfoundland students correctly answered the same percentage of items as the norm group. The norm group outperformed the Newfoundland students on all five items.

For double consonants, the Newfoundland students correctly answered 25% of the items, compared with 29% for the national norm. The norm group had a higher performance for two of the three items in this category, especially Item 95 ("permited").

For vowel substitution, Newfoundland students correctly answered 49% of the items, compared with 56% for the norm group. The norm group had a higher performance for all five of the items. Item 85 ("importent") posed particular problems for the Newfoundland students.

For vowel reversal, the Newfoundland students correctly answered 39% of the items, compared with 47% for the norm group. The norm group outperformed the Newfoundland students on all four items. The Newfoundland students had special problems with Item 59 ("nervuos").

For vowel omission, the Newfoundland students correctly answered 47% of the items, compared with 53% for the norm group. The norm group had a higher performance for all four items.

For vowel addition, the Newfoundland students correctly answered 39% of the items, compared with 46% for the control group. The Newfoundland students had a higher performance on one of the three items in this category. Item 96 ("thourough") seemed to be especially difficult for the Newfoundland students.

Test L-2: Capitalization

Capitalization shows whether or not the student knows which word in a sentence should be capitalized.

Item 48:
1. "I remember playing The Jolly
2. Old Miller with my cousins,"
* 3. great-grandmother Wye told us.
4. *(No mistakes)*

Provincial -- 43%
National Norming Sample -- 45%

Item 64:
1. My music teacher, Mrs. David, is
* 2. blind. She has a german shepherd
3. named Mozart for a guide dog.
4. *(No mistakes)*

Provincial -- 79%
National Norming Sample -- 77%

The Newfoundland students had a grade equivalent score of 7.0 on the **capitalization** subtest, which indicates that they were on average two months behind the national norm group. Newfoundland students answered 47% of the items correctly, as compared to 49% for the norm group.

The **capitalization** subtest contains five categories: names and titles, dates and holidays, place names, organizations and groups, and linguistic conventions (for example, capitals at the beginning of a sentence).

Table 7. Item Analysis (Capitalization)

Test L - 2: Capitalization	**Average Percent Correct**				
Skill Objectives	No. Items	Provincial	National	Board	School
NAMES AND TITLES	4	46	45		
1A Names of persons or animals and initials of persons	1	62	54		
1B The pronoun "I"	.	.	.		
1C Titles of respect, honor, or rank	1	47	54		
1D Words indicating family relationships	1	43	45		
1E Expressions used for the Deity and the Bible	1	31	28		
DATES AND HOLIDAYS	1	30	26		
2A Names of the days of theweek	.	.	.		
2B Names of the months	.	.	.		
2C Names of holidays and religious days	1	30	26		
PLACE NAMES	6	51	53		
3A Names of cities and provinces	1	47	51		
3B Names of streets, avenues, etc	.	.	.		
3C Names of schools, buildings, etc.	2	43	44		
3D Names of rivers, oceans, etc.	2	45	50		
3E Names of countries and continents	1	82	79		
3F Names which designate geographic regions	.	.	.		
ORGANIZATIONS AND GROUPS	7	46	48		
4A Names of organizations	3	43	49		
4B Names of political, racial, or religious groups	1	36	42		
4C Names of things, ships, planes, etc.	.	.	.		
4D Names of brands or products	1	74	75		
4E Names of historical periods or events	.	.	.		
4F Proper adjectives	2	42	36		
LINGUISTIC CONVENTIONS	6	50	53		
5A First word of a sentence	.	.	.		
5B First word of a quotation	2	38	42		
5C Titles of books, music, plays, etc.	2	49	55		
5D In writing letters, the salutation	1	79	77		
5E In writing letters, the complimentary close	1	46	47		
OVERCAPITALIZATION	4	37	39		
NO MISTAKES	3	60	61		
TOTAL CAPITALIZATION	31	47	49		

For names and titles, the Newfoundland students correctly answered 46% of the items, as compared with 45% for the norm group. The norm group had a higher performance on two out of the four items.

For dates and holidays, the Newfoundland students correctly answered 30% of the items as compared with 26% for the norm group. The Newfoundland students outperformed the norm group on the one item included in this category.

For place names, the Newfoundland students correctly answered 51% of the items as compared with 53% for the norm group. The norm group had a higher performance on four of the six items in this category.

For organizations and groups, the Newfoundland students correctly answered 46% of the items as compared with 48% for the national norm. The Newfoundland students had a higher performance on one out of the seven items in this category.

For linguistic conventions, the Newfoundland students correctly answered 50% of the items as compared with 53% of the national norm. The norm group outperformed the Newfoundland students on all four items in this category. The Newfoundland students had particular problems with Item 59 ("Today in Sports" is on at the same time as my brother's favourite program, "Science and you.").

Test L-3: Punctuation

This test determines whether or not the student can use appropriate punctuation.

Item 40:
1. "That's the last time I'll
* 2. let you ride my bike " shouted
3. Sue. "Look at that scratch!"
4. *(No mistakes)*

Provincial – 44%
National Norming Sample – 50%

Table 8. Item Analysis (Punctuation)

Test L - 3: Punctuation	**Average Percent Correct**				
Skill Objectives	No. Items	Provincial	National	Board	School
TERMINAL PUNCTUATION	6	47	48		
1A Period	2	50	50		
1B Question mark	2	42	41		
1C Exclamation mark	2	51	54		
USE OF COMMA	9	51	51		
2A To separate names of city and province	1	43	43		
2B To separate names of city or province and country	.	.	.		
2C End of salutation (letter)	.	.	.		
2D At end of complimentary close of letter	1	43	45		
2E To set off "yes" and "no"	.	.	.		
2F To set off introductory or parenthetical adverbs	.	.	.		
2G To set off name of person addressed	.	.	.		
2H To set off words in apposition	1	33	35		
2I To separate words in series	3	67	67		
2J To separate quotation from rest of sentence	1	37	42		
2K To set off dependent clauses and phrases preceding the main clause	1	48	42		
2L In compound sentence, to set off independent clauses joined by conjunctions if subject changes	1	54	54		
2M To set off non-restrictive phrases or clauses	.	.	.		
OTHER PUNCTUATION	5	58	57		
3A Apostrophe	1	42	44		
3B Quotation marks	2	68	67		
3C Colon	1	42	43		
3D Semicolon	1	71	63		
OVERPUNCTUATION	8	52	50		
4A Punctuation between phrases	.	.	.		
4B Comma for trivial pause	1	48	44		
4C Comma between word and immediately before a modifier	1	75	74		
4D Comma to set off restrictive clauses phrases	1	56	55		
4E Apostrophe (noun plurals)	2	42	37		
4F Apostrophe in words ending in "s"	1	48	50		
4G Quotation marks with indirect quotations	2	56	54		
NO MISTAKES	3	57	55		
TOTAL PUNCTUATION	31	52	52		

Item 57: * 1. We chose the story The Sailor
2. for our musical. Mrs. Kim says
3. that it should be a good show.
4. *(No mistakes)*

Provincial -- 63%
National Norming Sample -- 60%

Newfoundland students had a grade equivalent score of 7.2 on the **punctuation** subtest. This score is equivalent to that of the norm group. Both the Newfoundland students and the national norm group answered 52% of the items correctly.

The **punctuation** subtest contained four categories: terminal punctuation (periods, exclamation marks, etc.), commas, other punctuation, and over-punctuation.

For terminal punctuation, the Newfoundland students correctly answered 47% of the items, compared with 48% for the national norm. The Newfoundland students performed better on four of the six items in this category.

For commas, the Newfoundland students scored identically to the national norm. The norm group outperformed the Newfoundland students on four of the nine items.

For other punctuation, the Newfoundland students correctly answered 58% of the items, compared with 57% for the national norm. The norm group had a higher performance on three of the five items.

For over-punctuation, the Newfoundland students correctly answered 52% of the items, compared with 50% for the national norm. The Newfoundland students a higher performance on seven of the eight items.

Test L-4: Usage and Expression

This is a test of the use of words. It assesses whether or not the student can use words according to correct standards of written English.

Item 34:
* 1. This here article is about a
2. girl who raised a giant pumpkin.
3. It had a mass of almost 100 kg.
4. *(No mistakes)*

Provincial – 56%
National Norming Sample – 55%

Item 49:
1. As soon as the Lions made their
2. nomination, they knew they had
* 3. theirselves a winning candidate.
4. *(No mistakes)*

Provincial – 34%
National Norming Sample – 40%

Newfoundland students had a grade equivalent score of 7.0 on the **usage and expression** subtest. This indicates that they were on average two months behind the norm group. Newfoundland students correctly answered 57% of the items, while the norm group correctly answered 58% of the items.

The **usage and expression** subtest has seven categories: the use of verbs, the use of pronouns, the use of modifiers, the use of context, conciseness and clarity, appropriateness, and organization.

Table 9. Item Analysis (Usage and Expression)

Test L - 4: Part 1 - Usage		**Average Percent Correct**			
Skill Objectives	No. Items	Provincial	National	Board	School
USE OF VERBS	6	55	63		
1A Agreement of subject and verb	1	47	49		
1B The past tense	2	67	70		
1C The past participle	1	43	55		
1D Miscellaneous verb forms	2	53	67		
USE OF PRONOUNS	3	45	47		
2A Order of first person pronouns	.	.	.		
2B Case forms	1	52	53		
2C Agreement with antecedent	1	50	47		
2D Miscellaneous pronoun forms	1	34	40		
USE OF MODIFIERS	4	53	55		
3A Comparative and superlative forms	2	33	35		
3B Articles	.	.	.		
3C Adjective-adverb substitution	.	.	.		
3D Miscellaneous modifying forms	2	72	74		
USE OF CONTEXT	6	60	60		
4A Double negatives	2	66	66		
4B Redundancies	2	69	67		
4C Homonyms	1	40	39		
4D Plural forms	1	47	40		
NO MISTAKES	3	62	65		
Part II - Expression					
CONCISENESS AND CLARITY	3	76	72		
5A Conciseness	1	74	71		
5B Misplaced modifiers	1	75	70		
5C Ambiguous references	1	78	74		
APPROPRIATENESS	11	55	54		
6A Verb tenses	2	68	63		
6B Verbals	2	62	57		
6C Modifiers and conjunctions	1	69	67		
6D Parallel construction	3	44	43		
6E Suitability to purpose	3	48	51		
ORGANIZATION	7	57	56		
7A Sentence structure	4	63	60		
7B Sentence order	1	44	43		
7C Sentence function	2	53	56		
TOTAL USAGE AND EXPRESSION	43	57	58		

For the use of verbs, the Newfoundland students correctly answered 55% of the items, as compared with 63% for the norm group. The norm group outperformed the Newfoundland students on all six items in this category. In particular, the Newfoundland students had difficulty with Items 40 ("I've managed to break the motor somehow, although the manual said this one couldn't be wore out.") and 45 ("We were all just setting around the pool when Di came. It was even too hot to swim.").

For the use of pronouns, the Newfoundland students correctly answered 45% of the items, as compared with 47% of the norm group. The norm group had a higher performance on two out of the three items in this category.

For the use of modifiers, the Newfoundland students correctly answered 53% of the items, compared with 55% for the national norm. The norm group outperformed the Newfoundland students on three out of the four items.

For the use of context, the Newfoundland students correctly answered the same percentage of items as the national norm. The Newfoundland students equalled or outperformed the norm group on five of the six items.

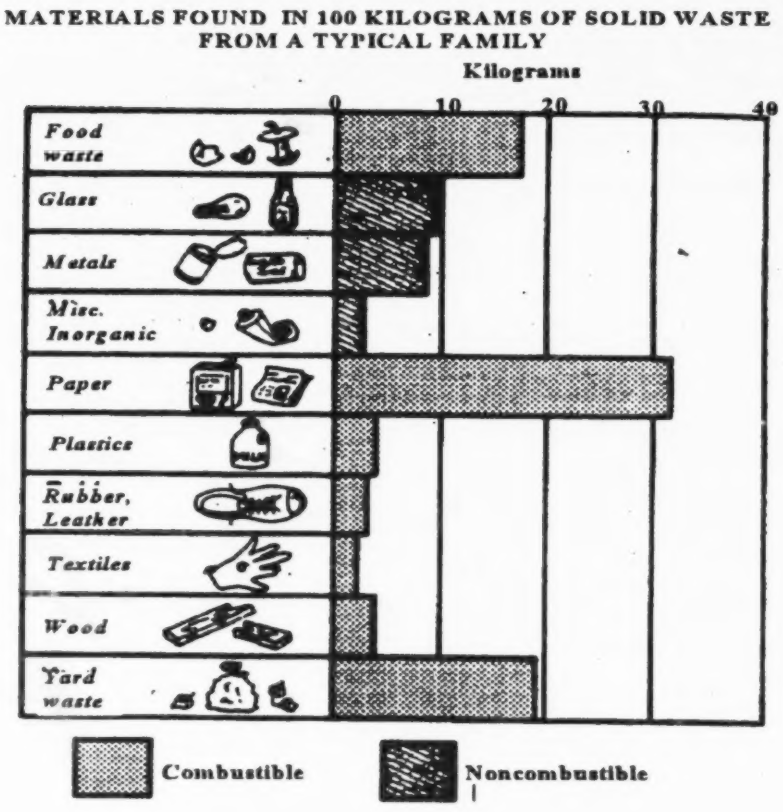
For conciseness and clarity, the Newfoundland students correctly answered 76% of the items as compared with 72% for the national norm. The Newfoundland students outperformed the norm group on all three items.

For appropriateness, the Newfoundland students correctly answered 55% of the items, compared with 54% for the national norm. The norm group outperformed the Newfoundland students on three of the 11 items.

For organization, the Newfoundland students correctly answered 57% of the items, compared with 56% for the national norm. The norm group had a higher performance on two of the seven items.

Test W-1: Visual Materials

This test assesses the student's ability to extract and use information from maps, graphs, and tables.

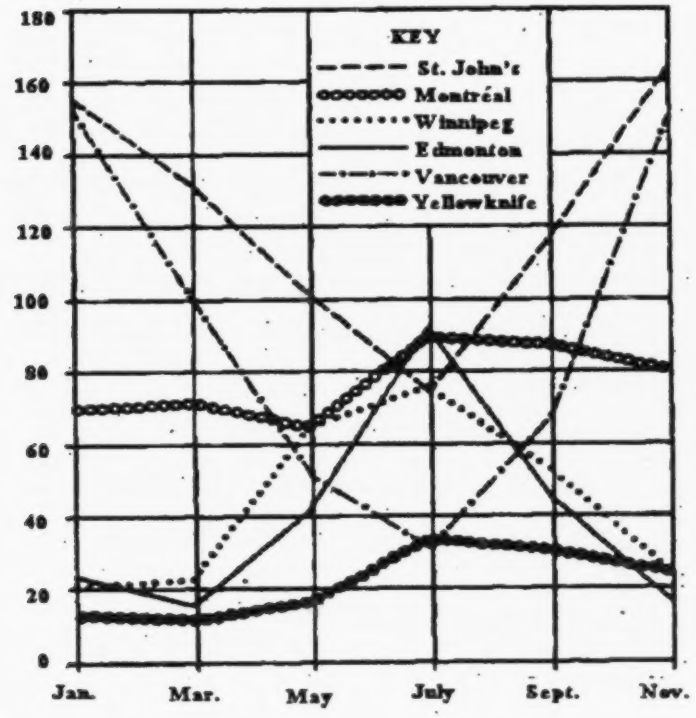


Item 60: Where does food waste rank?

1. Second
* 2. Third
3. Fourth
4. Fifth

Provincial – 68%
National Norming Sample – 61%

Average Total Precipitation for Some Canadian Cities for Selected Months (in millimetres)



Item 97: During which two-month period does Vancouver probably have the least amount of precipitation?

* 1. June and July
2. August and September
3. October and November
4. February and March

Provincial -- 44%
National Norming Sample -- 48%

Table 10. Item Analysis (Visual Materials)

Test W - 1: Visual Materials		Average Percent Correct			
Skill Objectives	No. Items	Provincial	National	Board	School
MAP READING	28	47	47		
LOCATING AND DESCRIBING PLACES	7	54	54		
1A Through the use of standard symbols	2	74	77		
1B Through the use of a key	1	63	58		
1C Through the use of distance/direction	1	42	37		
1D Through the use of longitude or latitude	3	42	44		
DETERMINING DIRECTION	3	28	28		
2A From orientation	.	.	.		
2B From parallels or meridians	1	45	41		
2C Of river flow or slope of land	2	20	21		
DETERMINING DISTANCE	3	65	62		
3A On a road or street map	1	74	71		
3B By using a scale of distance	1	38	37		
3C Comparing distances or areas	1	82	79		
INTERPRETING/RELATING DATA ON POPULATION, ELEVATION, ETC	7	40	41		
BEHAVIOUR AND LIVING CONDITIONS	8	48	47		
5A Tracing routes of travel	1	58	56		
5B Understanding seasonal variations, etc	3	46	41		
5C Visualizing landscape features	1	46	45		
5D Relating living conditions to location and land features	3	46	50		
READING GRAPHS AND TABLES	21	54	51		
READING AMOUNTS	2	63	64		
6A Using the scales on bar and line graphs	2	63	64		
6B Interpreting the sectors of a circle graph	.	.	.		
6C Locating a cell in a table	.	.	.		
COMPARING QUANTITIES	8	50	47		
7A Determining rank	3	60	57		
7B Determining the sums and differences	3	52	48		
7C Determining ratios	2	33	31		
INTERPRETING RELATIONSHIPS, TRENDS	11	55	52		
8A Interpreting titles and subtitles	.	.	.		
8B Determining relative rates and trends	5	52	51		
8C Determining underlying relationships	2	50	44		
8D Generalizing and drawing conclusions	4	62	58		
TOTAL VISUAL MATERIALS	49	50	49		

The Newfoundland students had a grade equivalent score of 7.2 on the **visual materials** subtest, which is equivalent to that of the norm group. The Newfoundland students correctly answered 50% of the items, while the norm group correctly answered 49% of the items.

The **visual materials** subtest has two categories: map reading and reading graphs and tables. The map reading items assess whether or not students can locate places; determine direction and distance; and use map features to extrapolate other information such as elevation, population, and information about the lifestyles of the inhabitants. The graph and table items determine whether or not students can read and compare quantities and interpret relationships and trends.

For map reading, the Newfoundland students correctly answered 47% of the items, which is equivalent to the national norm. The Newfoundland students equalled or outperformed the norm group on 18 of the 28 items.

For reading graphs and tables, the Newfoundland students correctly answered 54% of the items, as compared with 51% for the national norm. The norm group had a higher performance for 4 of the 21 items.

Test W-2: Reference Materials

This is a test of study skills such as looking up words in a dictionary, alphabetizing, using an index, and locating information.

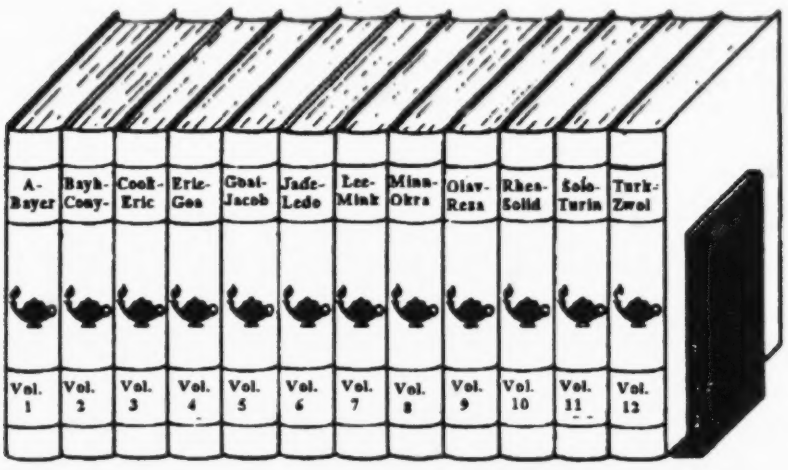
At the top of every page in the dictionary, there are two guide words. The guide words are the first and the last words found on the page. Use the following list of guide words and page numbers in answering the exercises below.

ultimate / understand	687
understate / uniform	688
unify / unload	689
unlock / upper case	690
upper class / urban	691

Item 60: On which page would you find the word upheaval?

1. 688
2. 689
* 3. 690
4. 691

Provincial -- 49%
National Norming Sample -- 50%



Item 83: Which volume might contain information about the style, the type of materials, and the adornments of clothing worn by people around the world?

1. Volume 1
* 2. Volume 2
3. Volume 7
4. Volume 11

Provincial – 41%
National Norming Sample – 48%

Newfoundland students had a grade equivalent score of 7.1 on the **reference materials** subtest. This indicates that they were on average one month behind the norm group. The Newfoundland students correctly answered 53% of the items, while the norm group correctly answered 54% of the items.

The **reference materials** subtest contains 8 categories: alphabetizing, using an index, using a dictionary, using encyclopedias, using guide words, using key words, and using general reference materials (dictionaries, magazines, etc.).

For alphabetizing, the Newfoundland students correctly answered 77% of the items, as compared to 76% for the national norm. The Newfoundland students had an equal or higher performance than the norm group on seven of the eight items in this category.

For using an index, the Newfoundland students correctly answered 49% of the items, as compared to 47% for the national norm. The Newfoundland students equalled or outperformed the norm group on all eight of the items.

For using a dictionary, the Newfoundland students correctly answered 35% of the questions, as compared to 38% for the national norm. The norm group outperformed the Newfoundland students on six of the eight items.

For using encyclopedias, the Newfoundland students correctly answered 32% of the items, as compared with 36% for the national norm. The norm group had a higher performance than the Newfoundland students on all five items.

For using guide words, the Newfoundland students correctly answered 59% of the questions, as compared to 58% for the norm group. The norm group outperformed the Newfoundland students on two of the four items in this category.

For using key words, the Newfoundland students correctly answered 48% of the items, as compared to 54% for the norm group. The norm group had a higher performance on two of the three items, especially Item 66 ("If you wanted to find a list of gods worshipped in ancient Greece and Rome, which key word would you choose?").

For using general reference materials, the Newfoundland students correctly answered 66% of the items, as compared with 67% for the national norm. Out of six items, the norm group had a higher performance on four items. Relative to the norm group, the Newfoundland students did

Table 11. Item Analysis (Reference Materials)

Test W -2: Reference Materials		**Average Percent Correct**			
Skill Objectives	No. Items	Provincial	National	Board	School
ALPHABETIZING (A)	8	77	76		
USING A TABLE OF CONTENTS (C)	.	.	.		
USING AN INDEX (I)	8	49	47		
USING A DICTIONARY (D)	8	35	38		
D1 Spelling	1	65	64		
D2 Pronunciation	2	19	26		
D3 Syllabification	1	51	52		
D4 Plural forms	1	27	30		
D5 Parts of speech	1	33	36		
D6 Meaning	2	34	36		
USING ENCYCLOPEDIAS (E)	5	32	36		
USING GUIDE WORDS (G)	4	59	58		
USING KEY WORDS (K)	3	48	54		
USING GENERAL REFERENCE MATERIALS (R)	6	66	67		
R1 Use of the parts of a book: index, table of contents, etc.	1	75	58		
R2 Use of textbooks	.	.	.		
R3 Use of dictionary	1	57	70		
R4 Use of encyclopedias	.	.	.		
R5 Use of calendar	.	.	.		
R6 Use of maps, globes, and atlases	1	76	77		
R7 Use of current magazines	1	72	77		
R8 Use of special references: Who's Who in Canada, The World Almanac, etc.	1	45	55		
R9 Book selection	1	68	63		
TOTAL REFERENCE MATERIALS	42	53	54		

very well on Item 46 ("If you wanted to know the meaning of a technical word in a textbook, where would you look?"). They did relatively poorly on Items 47 ("Which of these would tell you how the word finesse should be divided at the end of a line?") and 50 ("Which of these would help you identify a fungus disease that attacks apple trees?").

Test M-1: Mathematics Concepts

This is a test of how well the student understands the number system and the terms and operations used in mathematics.

Item 77: Before boarding the airplane Suzanne wanted to find the mass of her packed suitcase. What unit is best for her to use?

1. metre
* 2. kilogram
3. centigram
4. gram

Provincial – 62%
National Norming Sample – 60%

Item 88: What is the greatest common factor of 50 and 325?

1. 5
2. 10
* 3. 25
4. 50

Provincial – 63%
National Norming Sample – 56%

The Newfoundland students had a grade equivalent score of 7.3 on the **mathematics concepts** subtest. This indicates that they were one month ahead of the national norm. The Newfoundland students correctly answered 53% of the items, which was identical to the norm group.

The **mathematics concepts** subtest consists of six categories: numeration and number systems; equations, inequalities, and number sentences; whole numbers and integers; fractions; decimals, currency, and percent; and geometry and measurement.

For numeration and number systems, the Newfoundland students correctly answered 52% of the items, compared to 54% for the norm group. Out of nine items, the norm group had a higher performance than the Newfoundland students on five items. The Newfoundland students had particular difficulty with Items 91 ("What is another name for 10^2?") and 92 ("What should replace *n* in the equation 2/3 x 3/n = 1 ?"). They did particularly well on Items 70 ("Which is a prime number?") and 80 ("What should replace the □ to make the following a true statement: 267 351 = □ + 60 000 + 7 000 + 300 + 50 + 1 ?").

For equations, inequalities, and number sentences, the Newfoundland students correctly answered 55% of the items, compared with 58% for the national norm. The norm group outperformed the Newfoundland students on four of the six items.

For whole numbers and integers, the Newfoundland students correctly answered 60% of the items, compared to 56% for the norm group. The Newfoundland students performed as well as or better than the norm group on three of the five items.

For fractions, the Newfoundland students correctly answered 52% of the items, the same percentage as the norm group. The Newfoundland students outperformed the norm group on four of the six items in this category.

For decimals, currency, and percent, the Newfoundland students correctly answered 49% of the items, compared to 44% for the national norm. The norm group had a higher performance on two of the eight items in this category. The Newfoundland students did particularly well on Item 69 ("What should replace the Δ in the number sentence 0.006 x 100 = Δ?").

For geometry and measurement, the Newfoundland students correctly answered 55% of the items, compared with 54% for the national norm. Out of seven items, the norm group had a higher performance on four items.

Table 12. Item Analysis (Mathematics Concepts)

Test M - 1: Mathematics Concepts		**Average Percent Correct**			
Skill Objectives	No. Items	Provincial	National	Board	School
NUMERATION AND NUMBER SYSTEMS (N)	9	52	54		
N1 Counting and number series	.	.	.		
N2 Ordinals	.	.	.		
N3 Place value and expanded notation	4	66	66		
N4 Properties of number systems	4	35	41		
N5 Subsets of number systems	1	69	59		
EQUATIONS, INEQUALITIES, AND NUMBER SENTENCES	6	55	58		
E1 Operational and relational symbols	2	47	47		
E2 Solution of number sentences	4	60	63		
WHOLE NUMBERS; INTEGERS	5	60	56		
W1 Reading and writing	.	.	.		
W2 Relative values	.	.	.		
W3 Terms	2	63	55		
W4 Fundamental operations: Number fact	.	.	.		
W5 Fundamental operations: Ways to perform	.	.	.		
W6 Fundamental operations:Estimating results and rounding	2	64	61		
W7 Negative numbers	1	48	49		
FRACTIONS	6	52	52		
F1 Part of a whole and partitioning of a set	.	.	.		
F2 Relative values	2	42	41		
F3 Equivalent fractions	.	.	.		
F4 Terms	.	.	.		
F5 Fundamental operations: Ways to perform	1	53	65		
F6 Fundamental operations: Estimating results and rounding	1	43	40		
F7 Ratio and proportion	2	65	64		
DECIMALS, CURRENCY, AND PERCENT (D)	8	49	44		
D1 Reading and writing	1	65	57		
D2 Relative values	1	49	44		
D3 Fundamental operations: Ways to perform	2	39	37		
D4 Fundamental operations: Estimating results and rounding	2	37	34		
D5 Equivalence: Decimals, fractions, and percents	2	62	57		
D6 Probability and statistics	.	.	.		
GEOMETRY AND MEASUREMENT (G)	7	55	54		
G1 Measurement: Quantity, time, and temperature	1	30	31		
G2 Measurement: Length and mass	1	62	60		
G3 Recognizing types and parts of geometric figures	2	66	61		
G4 Area and perimeter of plane figures	2	58	55		
G5 Surface area and volume of solid figures	1	49	54		
G6 Use of geometric figures in description and proof	.	.	.		
TOTAL MATHEMATICS CONCEPTS	41	53	53		

Test M-2: Mathematics Problem Solving

This is a test of the student's skill in solving mathematics problems.

To work problems 46-54, look at the picture above to find the prices of the items. Do not allow for sales tax.

Item 49: Jim bought a bunch of bananas with a mass of 2.5 kg. **How much did it cost?**

1. $2.40
* 2. $3.00
3. $3.60
4. *(Not given)*

Provincial – 44%
National Norming Sample – 42%

Item 61: Mary worked 4 h helping her mother. She spent 1 h and 30 min picking pears, 1 h and 30 min peeling the pears, and the rest of the time slicing the pears. **How much time did Mary spend slicing pears?**

* 1. 1 h
2. 1.5 h
3. 2 h
4. *(Not given)*

Provincial – 49%
National Norming Sample – 48%

Table 13. Item Analysis (Mathematics Problem Solving)

Test M - 2: Mathematics Problem Solving		**Average Percent Correct**			
Skill Objectives	No. Items	Provincial	National	Board	School
SINGLE-STEP PROBLEMS: ADDITION - SUBTRACTION	7	51	50		
1C Currency	1	70	68		
1W Whole numbers	1	43	50		
1F Fractions, decimals, percents	5	49	46		
SINGLE-STEP PROBLEMS: MULTIPLICATION - DIVISION	5	54	51		
2C Currency	1	68	66		
2W Whole numbers	1	49	41		
2F Fractions, decimals, percents	3	51	49		
MULTIPLE-STEP PROBLEMS: COMBINED USE OF BASIC OPERATIONS	18	39	37		
3C Currency	4	55	51		
3W Whole numbers	7	39	37		
3F Fractions, decimals, percents	7	29	29		
TOTAL MATHEMATICS PROBLEM SOLVING	30	44	42		

The Newfoundland students had a grade equivalent score of 7.2 on the **mathematics problem solving** subtest. This indicates that they were on average equivalent to the norm group. The Newfoundland students correctly answered 44% of the items, while the national norm group correctly answered 42%.

The **mathematics problem solving** subtest contains three categories: single-step addition and subtraction problems, single-step multiplication and division problems, and multiple-step problems. The multiple-step problems require the combined use of basic operations.

For single-step addition and subtraction problems, the Newfoundland students correctly answered 51% of the items, compared to the national norm of 50%. The Newfoundland students outperformed the norm group on six of the seven items.

For single-step multiplication and division problems, the Newfoundland students correctly answered 54% of the items, compared to the national norm of 52%. The Newfoundland students had a higher performance on all five items in this category.

For multiple-step problems, the Newfoundland students correctly answered 39% of the items, compared with the national norm of 37%. The norm group had a higher performance than the Newfoundland students on seven of the 18 items. Relative to the norm group, the Newfoundland students did particularly well on Item 42 ("There are 12 car pools at the plant where Mr. Holst works. Half of them contain 4 people. The other half contain 5 people. How many workers at Mr. Holst's plant belong to car pools?").

Test M-3: Mathematics Computation

This is a test of skills in mathematics computation.

Item 78: $\frac{7}{10} - \frac{4}{10} =$

*1. $\frac{3}{10}$ 2. $\frac{11}{20}$ 3. $\frac{3}{20}$ 4. Not Given

Provincial – 72%
National Norming Sample – 75%

Item 89: $1.2 + 0.3 + 5 =$

1. 2.0
* 2. 6.5
3. 9.2
4. Not Given

Provincial -- 45%
National Norming Sample -- 52%

Table 14. Item Analysis (Mathematics Computation)

Test M - 3: Mathematics Computation		**Average Percent Correct**			
Skill Objectives	No. Items	Provincial	National	Board	School
WHOLE NUMBERS (W)	14	63	62		
WA Addition	2	61	60		
WS Subtraction	3	74	71		
WM Multiplication	5	66	66		
WD Division	4	52	52		
FRACTIONS (F)	9	26	31		
FA Addition	3	27	33		
FS Subtraction	2	44	49		
FM Multiplication	2	17	20		
FD Division	2	16	19		
DECIMALS (D)	19	43	42		
DA Addition	5	57	59		
DS Subtraction	4	47	47		
DM Multiplication	7	38	33		
DD Division	3	25	25		
TOTAL MATHEMATICS COMPUTATION	42	46	46		

The Newfoundland students had a grade equivalent score of 7.1 on the **mathematics computation** subtest, which indicates that they were one month behind the norm group. The Newfoundland students correctly answered 46% of the items, which is also the approximate amount answered correctly by the norm group.

The **mathematics computation** subtest contains three categories: whole numbers, fractions, and decimals. The items assess the student's ability to perform the four basic operations with each category of numbers.

For whole numbers, the Newfoundland students correctly answered 63% of the items, compared with the national norm of 62%. The Newfoundland students had a higher performance on 10 of the 14 items in this category.

For fractions, the Newfoundland students correctly answered 26% of the items, compared with 31% for the norm group. The norm group had a higher performance on all nine items in this category.

For decimals, the Newfoundland students correctly answered 43% of the items, compared with 42% for the national norm group. The norm group outperformed the Newfoundland students on nine of the 19 items.

SUMMARY

CTBS results should be examined in conjunction with other performance indicators to provide a more comprehensive profile of student progress and skill development. It must be noted that the information provided by the CTBS is not comprehensive enough to be used in making evaluative decisions about individual students. These decisions should be based upon information gathered from other sources.

Similarly, when assessing the performance of any school, the CTBS results must be interpreted cautiously, as they may reflect many factors other than quality of instruction. Factors such as learning opportunities outside of the school, the grade placement of the material taught, the relative emphasis placed on the basic skills within the school curriculum, and the level of student aptitude may all influence the ranking of a school or board.

Assessing satisfactory school performance requires subjective standards and decisions. What determines an acceptable standard may vary from school to school or from district to district. Each school defines its own unique set of criteria. These criteria reflect the goals of the school, and are adapted to the ability level of the pupils. The CTBS results cannot dictate educational goals and expectations across the broad spectrum of schools. The results are most valuable when used as part of a formative evaluation rather than a summative one. That is, the results should be used to determine which areas require more emphasis and attention. Used in this manner, they should stimulate a higher level of achievement in terms of both teaching and learning.

The following are some conclusions that may be drawn on the basis of the 1994 results:

1. Newfoundland students scored within the average percentile range in all five major performance areas. The scores for the majority of these areas were slightly below the midpoint, although the scores for mathematics and work-study were slightly above the midpoint.

2. The subtest areas in which Newfoundland students were strongest (relative to the national norm) are punctuation, the use of visual materials, mathematics concepts, and mathematics problem solving. The areas in which Newfoundland students were weakest (relative to the national norm) are vocabulary and spelling.

3. Female students outperformed male students in all areas except mathematics.

4. Students in large schools (130 + grade seven students) performed at a higher level than students in smaller schools.

5. Students in urban areas performed at a higher level than students in rural areas.

6. Students in the Avalon region performed at a higher level than students in other regions of the province.

7. French immersion students who wrote the mathematics test in English outperformed those who wrote it in French. These results were found even though the English test group did not perform as well as the French test group on the other areas of the test (written in English by all students).

APPENDIX A:

ACHIEVEMENT BY SCHOOL DISTRICT ON EACH SUBTEST

CTBS Results By District By Subtest, Fall 1994, Grade 7.																
DISTRICT NAME		VOC	RDG	SPL	CAP	PUN	USG	VIS MAT	REF MAT	MTH CON	MTH PBM	MTH CMP	LNG TOT	WRK TOT	MTH TOT	BTR TOT
101 VINLAND/ST. BELLE IS	GE	6.3	6.6	6.1	6.9	7.1	6.8	7	6.9	7.2	7	7.3	6.7	7	7.2	6.8
	NP	25	32	29	43	48	41	44	41	50	44	54	39	45	53	39
103 DEER LAKE/ST. BARBE STH	GE	6.9	7.1	6.6	6.7	7.1	7.1	7.3	7.3	7.3	7.1	7.2	6.9	7.3	7.2	7.1
	NP	41	47	38	38	48	47	53	53	53	47	50	43	54	53	49
104 GREEN BAY	GE	6.5	6.8	6.1	6.6	6.8	6.4	6.9	6.8	6.8	6.6	6.7	6.5	6.8	6.7	6.6
	NP	30	38	29	36	40	33	41	38	39	33	34	34	40	36	32
105 EXPLOIT'S VALLEY	GE	7	7.1	6.6	7	7.2	7	7.4	7.1	7.3	7.4	7.8	7	7.3	7.5	7.2
	NP	44	47	38	45	50	45	56	47	53	58	72	46	54	63	52
106 NOTRE DAME	GE	6.5	6.7	6.2	6.4	6.8	6.5	6.9	6.6	6.8	6.8	6.7	6.5	6.8	6.8	6.7
	NP	30	35	31	32	40	35	41	33	39	38	34	34	40	40	36
107 NOVA CONSOLIDATED	GE	6.7	7	6.3	6.8	7.1	6.8	7.2	7	7.1	7.1	7	6.7	7.1	7.1	6.9
	NP	36	44	32	40	48	41	50	44	48	47	44	39	48	50	42
109 BON.-TRI.-PLA.	GE	6.8	7	6.3	6.9	7.2	6.9	7.3	7	7.2	7.2	7.1	6.8	7.1	7.2	7
	NP	38	44	32	43	50	43	53	44	50	50	47	41	48	53	45
110 AVALON NORTH	GE	6.7	6.9	6.4	7.1	7.3	7	7.2	7.1	7.2	7.4	7.2	6.9	7.2	7.3	7
	NP	36	41	34	47	53	45	50	47	50	58	50	43	51	57	45
111 AVALON CONSOLIDATED	GE	7.4	7.4	6.8	7.2	7.5	7.5	7.7	7.5	7.6	7.4	7	7.3	7.6	7.3	7.4
	NP	57	57	42	50	58	57	65	59	61	58	44	54	63	57	59
112 BURIN PENINSULA	GE	6.7	7.1	6.5	7.5	7.5	7	7.4	7.1	7.4	7.3	7.2	7.1	7.3	7.3	7.1
	NP	36	47	36	57	58	45	56	47	56	54	50	49	54	57	49
113 BAY D'ESPOIR-HER.-F.B.	GE	6.3	7	6.5	7.2	7.5	6.5	7.3	7.1	7.1	7	7.4	6.9	7.2	7.2	7
	NP	25	44	36	50	58	35	53	47	48	44	58	43	51	53	45
114 PORT AUX BASQUES	GE	6.6	7.2	6.6	6.8	7.1	6.6	7.2	7	7.2	7.2	7	6.8	7.1	7.1	7
	NP	33	50	38	40	48	37	50	44	50	50	44	41	48	50	45
115 WESTERN INTEGRATED	GE	6.9	7.1	6.6	6.9	7.2	7	7.3	7	7.4	7.2	7	6.9	7.2	7.2	7.1
	NP	41	47	38	43	50	45	53	44	56	50	44	43	51	53	49
117 LABRADOR EAST	GE	6	6.5	6.1	6.3	6.6	5.9	6.4	6.4	6.5	6.5	6.7	6.3	6.4	6.6	6.4
	NP	20	29	29	30	35	23	28	28	31	30	34	29	29	33	27
118 LABRADOR WEST	GE	7.2	7.2	6.6	7.5	7.7	7.2	7.6	7.1	7.4	7.1	6.9	7.2	7.3	7.1	7.2
	NP	50	50	38	57	63	50	62	47	56	47	41	51	54	50	52

CTBS Results By District By Subtest, Fall 1994, Grade 7.																
DISTRICT NAME		VOC	RDG	SPL	CAP	PUN	USG	VIS MAT	REF MAT	MTH CON	MTH PBM	MTH CMP	LNG TOT	WRK TOT	MTH TOT	BTR TOT
129 CONCEPTION BAY	GE	7	7.1	6.6	7.1	7.3	7.3	7.4	7.5	7.3	7.4	7.3	7.1	7.5	7.3	7.3
	NP	44	47	38	47	53	53	56	59	53	58	54	49	60	57	56
502 BURIN PENINSULA	GE	6.5	6.8	6.1	6.5	6.7	6.4	6.8	6.5	7	6.9	6.9	6.5	6.6	6.9	6.7
	NP	30	38	29	34	38	33	38	30	45	41	41	34	34	43	36
504 WESTERN AVALON	GE	6.7	7	6.3	6.6	6.9	6.7	6.9	6.9	6.9	6.9	6.9	6.6	6.9	6.9	6.8
	NP	36	44	32	36	42	39	41	41	42	41	41	36	42	43	39
506 EXPLOITS WHITE-BAY	GE	6.9	7.1	6.5	7.3	7.5	7.2	7.2	7.1	7.4	7.2	7.1	7.1	7.1	7.2	7.1
	NP	41	47	36	53	58	50	50	47	56	50	47	49	48	53	49
507 FERRYLAND	GE	6.7	7	6.6	6.9	7.2	7	6.9	7	7	7.1	7.1	6.9	6.9	7.1	6.9
	NP	36	44	38	43	50	45	41	44	45	47	47	43	42	50	42
508 GANDER-BON.-CONNAIGRE	GE	6.6	6.9	6.3	6.9	7.1	6.9	7	6.9	6.9	6.9	7	6.8	6.9	7	6.9
	NP	33	41	32	43	48	43	44	41	42	41	44	41	42	47	42
509 HUMBER- ST. BARBE	GE	6.9	7	6.5	6.7	7.1	6.9	7.1	7	7.4	7.2	7	6.8	7.1	7.2	7
	NP	41	44	36	38	48	43	47	44	56	50	44	41	48	53	45
510 LABRADOR	GE	6.9	7.1	6.7	6.7	7	6.9	7.3	7.1	7.3	7.2	7	6.8	7.2	7.1	7
	NP	41	47	40	38	45	43	53	47	53	50	44	41	51	50	45
512 APPALACHIA	GE	6.5	6.7	6.3	6.4	6.8	6.4	6.8	6.6	7	7	7	6.5	6.7	7	6.7
	NP	30	35	32	32	40	33	38	33	45	44	44	34	37	47	36
514 ST. JOHN'S	GE	7.2	7.3	6.8	7.4	7.6	7.5	7.4	7.4	7.6	7.5	7.1	7.4	7.4	7.4	7.4
	NP	50	53	42	55	60	57	56	56	61	61	47	57	57	60	59
401 PENTECOSTAL ASSEMBLIES	GE	6.6	7	6.4	6.9	7	6.9	7.3	7.2	7.3	7.3	7.1	6.8	7.2	7.3	7
	NP	33	44	34	43	45	43	53	50	53	54	47	41	51	57	45
701 SEVENTH DAY ADVENTIST	GE	7.1	7.3	7	7.3	7.6	7.5	7.2	7.4	7.6	7.6	8	7.3	7.3	7.7	7.4
	NP	47	53	46	53	60	57	50	56	61	65	79	54	54	69	59
803 PRIV. - ERIC G. LAMBERT	GE	7.4	7.7	7.8	7.7	7.5	7.4	8	7.8	8.1	7.4	7.2	7.6	7.9	7.6	7.6
	NP	57	66	64	63	58	55	73	67	73	58	50	62	71	67	65
803 PRIV. - FIRST BAPTIST ACAD.	GE	6.8	6.8	9	7.8	8.2	7.4	6.7	6.5	6.1	7.1	7.5	8.1	6.6	6.9	7
	NP	38	38	86	65	74	55	36	30	21	47	61	74	34	43	45
803 PRIV. - LAKECREST ACAD.	GE	7.6	7.7	7.6	7.7	7.9	8.2	7.7	7.5	7.6	7.8	7.7	7.8	7.6	7.7	7.7
	NP	63	66	60	63	67	76	65	59	61	71	68	67	63	69	68
PROVINCE	GE	6.9	7.1	6.5	7	7.2	7	7.2	7.1	7.3	7.2	7.1	6.9	7.2	7.2	7.1
	NP	41	47	36	45	50	45	50	47	53	50	47	43	51	53	49

APPENDIX B:
ACHIEVEMENT BY SCHOOL DISTRICT ON EACH SUBTEST

Board	Sex	Vocabulary		Reading		Language		Work Study		Mathematics		Composite	
		GE	NPR	GE	NPR	GE	NPR	GE	NPR	GE	NPR	GE	NPR
Vin/Str. Belle	Females	6.2	23	6.7	35	7.0	46	7.0	45	7.2	53	6.8	39
	Males	6.4	27	6.6	32	6.5	34	6.9	42	7.1	50	6.7	36
Dr Lake/St Barb	Females	6.8	38	7.1	47	7.1	49	7.4	57	7.2	53	7.1	49
	Males	6.9	41	7.1	47	6.6	36	7.2	51	7.2	53	7.1	49
Green Bay	Females	6.3	25	6.7	35	6.7	39	6.8	40	6.6	33	6.6	32
	Males	6.7	36	6.8	38	6.3	29	6.9	42	6.8	40	6.7	36
Explts Valley	Females	7.1	47	7.2	50	7.2	51	7.4	57	7.6	67	7.3	56
	Males	7.0	44	7.0	44	6.7	39	7.1	48	7.4	60	7.1	49
Notre Dame	Females	6.7	36	6.9	41	6.8	41	7.0	45	6.9	43	6.9	42
	Males	6.3	25	6.4	26	6.2	27	6.6	34	6.7	36	6.5	29
Nova Consol.	Females	6..5	30	7.0	44	6.9	43	7.1	48	7.0	47	6.9	42
	Males	6.8	38	6.9	41	6.5	34	7.0	45	7.1	50	6.9	42
Bon/Trin/Plac	Females	6.8	38	7.1	47	7.1	49	7.2	51	7.1	50	7.1	49
	Males	6.8	38	6.8	38	6.5	34	7.1	48	7.2	53	6.9	42
Avalon North	Females	6.7	36	7.1	47	7.3	54	7.3	54	7.3	57	7.1	49
	Males	6.7	36	6.7	35	6.6	36	7.0	45	7.2	53	6.9	42
Avalon Consol.	Females	7.4	57	7.5	60	7.6	62	7.6	63	7.3	57	7.5	62
	Males	7.4	57	7.3	53	7.0	46	7.4	57	7.4	60	7.4	59
Burin Peninsula	Females	6.8	38	7.2	50	7.4	57	7.4	57	7.2	53	7.2	52
	Males	6.6	33	7.0	44	6.8	41	7.1	48	7.3	57	7.0	45
Bay D'Es/ Herm/For. Bay	Females	6.2	23	7.3	53	7.2	51	7.4	57	7.3	57	7.2	52
	Males	6.3	25	6.7	35	6.6	36	7.0	45	7.0	47	6.7	36
Pot Aux Basques	Females	6.7	36	7.4	57	7.2	51	7.3	54	7.2	53	7.2	52
	Males	6.5	30	7.0	44	6.4	32	6.9	42	7.1	50	6.8	39
Western Integrated	Females	7.0	44	7.2	50	7.3	54	7.3	54	7.3	57	7.3	56
	Males	6.9	41	7.0	44	6.6	36	7.1	48	7.1	50	7.0	45
Labrador East	Females	6.0	20	66	32	6.6	36	6.6	34	6.6	33	6.5	29
	Males	6.0	20	6.4	26	6.0	23	6.3	26	6.6	33	6.4	27
Labrador West	Females	7.2	50	7.3	53	7.6	62	7.4	57	7.0	47	7.3	56
	Males	7.1	47	7.1	47	7.0	46	7.3	54	7.2	53	7.1	49
Conception Bay	Females	7.0	44	7.2	50	7.4	57	7.7	66	7.5	63	7.4	59
	Males	7.0	44	7.0	44	6.6	36	7.2	51	7.2	53	7.1	49
Burin Penin RC	Females	6.6	33	7.1	47	6.8	41	6.8	40	7.0	47	6.9	42
	Males	6.5	30	6.6	32	6.2	27	6.5	32	6.9	43	6.5	29

Board	Sex	Vocabulary		Reading		Language		Work Study		Mathematics		Composite	
		GE	NPR	GE	NPR	GE	NPR	GE	NPR	GE	NPR	GE	NPR
Western Avalon	Females	6.9	41	7.2	50	7.0	46	7.1	48	7.0	47	7.1	49
	Males	6.5	30	6.7	35	6.3	29	6.7	37	6.8	40	6.6	32
Exploits/ White Bay	Females	7.0	44	7.2	50	7.5	59	7.3	54	7.2	53	7.2	52
	Males	6.9	41	7.0	44	6.8	41	7.0	45	7.3	57	7.0	45
Ferryland	Females	6.8	38	7.3	53	7.4	57	7.2	51	7.3	57	7.2	52
	Males	6.6	33	6.8	38	6.4	32	6.6	34	6.8	40	6.7	36
Gander/Bon/ Connaigre	Females	6.7	36	6.9	41	7.1	49	7.0	45	6.9	43	6.9	42
	Males	6.6	33	6.8	38	6.6	36	6.9	42	7.0	47	6.8	39
Humber/ St Barb	Females	7.0	44	7.3	53	7.2	51	7.3	54	7.3	57	7.2	52
	Males	6.7	36	6.8	38	6.3	29	6.8	40	7.1	50	6.8	39
Labrador	Females	6.8	38	7.1	47	7.0	46	7.2	51	7.1	50	7.0	45
	Males	7.0	44	7.1	47	6.6	36	7.1	48	7.2	53	7.0	45
Appalachia	Females	6.5	30	6.8	38	6.8	41	6.7	37	7.0	47	6.8	39
	Males	6.5	30	6.6	32	6.2	27	6.6	34	7.0	47	6.6	32
St. John's	Females	7.2	50	7.4	57	7.6	62	7.5	60	7.4	60	7.4	59
	Males	7.2	50	7.2	50	7.1	49	7.4	57	7.4	60	7.3	56
Pentecostal Assemblies	Females	6.6	33	7.1	47	7.1	49	7.3	54	7.2	53	7.1	49
	Males	6.7	36	7.0	44	6.5	34	7.2	51	7.3	57	7.0	45
Seven Day Adventist	Females	6.8	38	7.0	44	7.1	49	7.2	51	7.7	69	7.2	52
	Males	7.2	50	7.5	60	7.5	59	7.2	51	7.7	69	7.5	62
Private Eric G. Lambert	Females	6.8	38	7.3	53	7.3	54	7.4	57	7.1	50	7.2	52
	Males	7.8	69	8.0	74	7.8	67	8.2	78	7.9	75	7.9	74
Private First Baptist	Females	7.0	44	7.0	44	8.3	78	6.9	42	7.1	50	7.2	52
	Males	6.3	25	6.2	21	7.6	62	6.0	19	6.5	30	6.5	29
Private Lakecrest	Females	7.9	72	7.8	69	7.7	65	7.6	63	7.6	67	7.7	68
	Males	7.3	54	7.7	66	8.0	71	7.6	63	7.8	72	7.7	68
Provincial Norms	Combined	6.9	41	7.1	47	6.9	43	7.2	51	7.2	53	7.1	49
	Females	6.9	41	7.2	50	7.2	51	7.3	54	7.2	53	7.2	52
	Males	6.8	32	6.9	41	6.6	36	7.0	45	7.2	53	7.0	45